

### **REMARKS**

This Amendment is in response to the Office Action dated May 31, 2006. Claims 4 and 16 and Figure 1 have been amended. New claim 48 has been added. Claims 1-17 and 48 are pending.

A. **Objection to Specification:**

In the Office Action dated May 31, 2006, the Examiner objected to the specification as failing to provide proper antecedent basis for the claimed subject matter. Applicants respectfully traverse the objection. Applicants note that the regulations and MPEP §608.01(o) do not require a word for word match between claim language and the specification. Instead the specification must provide clear support or antecedent basis for the claim language. Applicants respectfully submit that each and every term in the claims finds clear support or antecedent basis in the specification in accordance with 37 CFR 1.75(d)(1). For example, Applicants direct the Examiner's attention to the following paragraphs in the specification: 016, 026, 030, 048, 049, 050, 061, and 063, which discuss heaters and heater exchanges. Accordingly, all of the terms in the original claims 1 – 17 find clear support or antecedent basis in the specification and that amendments to the specification are not needed. Therefore, Applicants respectfully request withdrawal of the objection.

B. **Objection to the Drawings:**

The Examiner objected to the drawings and asserts that a "second heating means for heating the inner surface" of the detonation chamber is not shown in the figures. Applicants respectfully disagree with the objection because the heater 42 shown adjacent to the expansion chamber 40 can be used to generate heat (e.g. hot air), which can be used to heat the inner surface of the detonation chamber. Applicants direct the Examiner's attention to paragraphs 060 and 061. In one embodiment, and as only one example, heat

can be applied to the external skin of the expansion chamber via a heater. During detonation within the detonation chamber, a vacuum is created within that chamber and pressure in the expansion chamber increases as the gas from the detonation chamber is received. One can control the heat applied to the inside of the expansion chamber via the heater, thereby heating the air in the expansion chamber. As the heated air transfers back from the expansion chamber to the detonation chamber, to relieve the vacuum created within the detonation chamber, the hot air will heat the inner surface of the detonation chamber. Therefore, Applicants respectfully submit that the drawings do show each and every feature of the invention.

For purposes of consistency with the specification, Figure 1 has been amended to illustrate a heater, shown as reference number 19, shown adjacent to the detonation chamber. This revision to Figure 1 is fully supported in paragraph 061 of the specification. Paragraph 061 has also been amended to include reference number 19. Applicants respectfully submit that no new matter has been added. A replacement drawing sheet and a redline copy of the drawing are enclosed for the Examiner's convenience.

C. Rejection under 35 U.S.C. §112, First Paragraph

Claims 13, 14 and 16 were rejected under 35 U.S.C. §112 as failing to comply with the enablement requirement. Applicants respectfully traverse this rejection. Claim 13, which refers to a means for heating an inner surface of the detonation chamber, is fully enabled by the specification into the drawings. As one example, Applicants direct the Examiner's attention to paragraphs 060 and 061 of the specification, which discuss, *inter alia*, a hot gas supply that actively heats the inner surface of the detonation chamber.

Claims 14 and 16 are also fully enabled. As discussed above in connection with at least one embodiment, and with reference to at least paragraphs 060 - 063, a heater that heats the expansion chamber can be used to heat the inner surface of the detonation chamber. The heated air within the expansion chamber is transferred back to the

detonation chamber to relieve the vacuum created therein upon detonation, and the heated air heats the inner surface of the detonation chamber. Accordingly, the specification and drawings provide an enabling disclosure of "a means for heating the inner surface of the destination chamber via a heater that heats the expansion chamber." Therefore, Applicants respectfully submit that the claims are fully enabled and request withdrawal of the rejection.

D. Rejection Under 35 U.S.C. §103

The Examiner rejected claims 1-17 as being obvious and unpatentable under 35 U.S.C. §103(a) in view of various combinations of nine references.

1. Rejection of Claims 1 and 5 In View of Donovan '181 and Gregg

Claims 1 and 5 were rejected under 35 U.S.C. §103(a) as being unpatentable over US Patent No. 6,354,181 (Donovan '181) in view of US Patent No. 6,431,094 (Gregg). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Applicants submit that the cited references cannot support a *prima facie* case of obviousness.

Claim 1 is directed to a system for rendering chemical weapons material less hazardous. The system comprises a detonation chamber, an emission treater, and an expansion chamber in fluid communication with the detonation chamber and the emission treater. The emission treater is adapted to treat gas from detonation of the chemical weapons material, yielding a substantially dry residual waste stream and a treated gas suitable for venting to atmosphere.

Donovan '181 is directed to a transportable device for destroying terrorist weapons. The device has an explosion chamber having hollow walls filled with granular shock dampening material. The explosion chamber is connected to steel manifolds with a linear array of vent pipes that penetrate the double walls of the explosion chamber. Donovan '181 does not disclose or teach an expansion chamber. Donovan '181 teaches that the manifolds direct explosion products to a scrubber, and the reference specifically refers to a wet scrubber (i.e., a water-spray scrubber) or "other treatment means 23 of other conventional construction coupled with a particulate separator 24 and an exhaust fan 25 to draw all explosion products out of the chamber after each detonation, so that no gaseous explosion products escape to the atmosphere untreated." See Col. 6, lines 17-22. Donovan '181 does not discuss in any further detail the scrubber or other treatment means. Donovan '181 does not disclose, or teach the emission treater as claimed.

The Examiner asserts that Donovan '181 discloses an emission treater "wherein the emission is adapted to treat gas from the detonation of the chemical weapons material (col. 6, lines 13-22), yielding a substantially dry residual waste stream (from 24) and a treated gas suitable for venting to atmosphere" (emphasis added). Applicants disagree with the Examiner's reading of the reference. The reference is simply silent about an emission treater that yields dry residual waste stream and a treated gas suitable for venting to atmosphere. The only teaching of such an emission treater is provided by the present application. Further, the silence in the reference is understandable because the device of Donovan '181 is designed for use with a wet scrubber.

Gregg does not correct the deficiencies of Donovan '181. Gregg is directed to a reactive waste facility having a plurality of deactivation bays adapted to accommodate a different type of reactive waste. The waste facility of Gregg is disclosed as having three deactivation devices, namely an electrical spark device, a direct contact heating device, and a shielded radian heating device for deactivating munitions items, such as grenades and mines. Gregg does not discuss destruction of chemical weapons. The facility of Gregg is not suitable for use with chemical weapons.

Gregg teaches that the facility is configured to collect gasses from the deactivation reactions (not including gases from chemical weapons), and cooling the gases in a cooling loop before directing the gases to a cyclone where large particles are removed. Then the gas is inducted through a filtration device, such as a bag house, where fine particles and other pollutants are removed. The reference is silent regarding a system having an emission treater adapted to treat gas from detonation of the chemical weapons material, yielding substantially dry residual waste stream and a treated gas suitable for venting to atmosphere. Accordingly, even if Gregg could be combined with the transportable system of Donovan '181, the resulting system would still not result in the system as claimed. Further, modifying the system of Donovan '181 to combine the transportable system of Donovan '181 with an air pollution control system in the facility of Gregg would destroy the intended function of the modular, transportable system of Donovan '181 for destruction of terrorist weapons, including chemical weapons.

The combination of the two systems of Donovan '181 and Gregg would also result in an inoperative system because the bag house and filtration device of Gregg are not suitable for use with destruction of chemical weapons. Therefore, components of the reaction waste facility of Gregg can not simply be connected to or substituted for the transportable chemical weapons destruction system of Donovan. Any such combination would only be apparent to one of ordinary skills in the art after fully understanding the present invention and applying a piecemeal construction of the references along with the benefit of impermissible hindsight analysis. Accordingly, the cited references, taken alone or in combination, do not teach or suggest each and every feature of the claims. Therefore, Applicants respectfully submit that claims 1 and 5 are patentable over Donovan '181 and Gregg, and that the claims are in condition for allowance.

## 2. Rejection of Claim 2 In View of Donovan '181, Gregg, and Donovan '242

Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Donovan '181 taken with Gregg, and further in view of U.S. Patent No. 6,705,242 (Donovan '242).

Donovan '242 is directed toward hermetically sealing an opening in an explosion suppression chamber. Donovan '242 does not correct the deficiencies of Donovan '181 and Gregg discussed above. Therefore, for the above reasons and the features in the claim, claim 2 is patentable over Donovan '181 taken with Gregg and Donovan '242, and is in condition for allowance.

3. Rejection of Claim 2 In View of Donovan '181, Gregg, and Lerner

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Donovan '181 and Gregg, and further in view of U.S. Patent No. 5,607,654 (Lerner). Lerner does not correct the deficiencies of Donovan '181 and Gregg discussed above. Therefore, for the above reasons and the features in the claim, claim 3 is patentable over Donovan '181 taken with Gregg and Lerner, and is in condition for allowance.

Furthermore, Lerner is directed toward incinerators that use both dry scrubbers and wet scrubbers to process the off gases from the incineration. Lerner teaches that treatment of the acid gases, toxic organic and toxic metal compounds generated during incineration of waste, such as biomedical waste, with dry scrubbers is insufficient, and that the gases must be treated with a wet scrubber before being suitable for venting to atmosphere. Lerner teaches away from an emission treater adapted to treat gas from detonation of chemical weapons material, yielding a substantially dry residual waste stream and a treated gas suitable for venting to atmosphere. Accordingly, the references taken alone or in combination do not teach or suggest the system as claimed. Any modification of the references to provide the present invention would only be apparent to one skilled in the art after fully understanding the present invention, and applying a piecemeal construction of the references with the benefit of impermissible hindsight analysis. Therefore, claim 3 is patentable over the cited references and is in condition for allowance.

4. Rejection of Claim 4 In View of Donovan '181, Gregg, Lerner, and Lamnevik

Claim 4 was rejected under 35 U.S.C. §103(a) and being unpatentable over Donovan '181, Gregg and Lerner, and further in view of U.S. Patent No. 5,481,062 (Lamnevik). Lerner does not correct the deficiencies of Donovan '181 and Gregg and Lerner discussed above. Therefore, for the above reasons and the features in the claim, claim 4 is patentable over Donovan '181 taken with Gregg, Lerner, and Lamnevik, and is in condition for allowance.

Further Lamnevik is directed to a method of destroying explosive substances by incineration in which the explosive substances are converted to a pumpable liquid or suspension which can be burned in conventional boiler. The Examiner is mixing and matching non-related technologies and treatment schemes, and the four references can not be properly combined to support an obviousness rejection. Donovan '181 and Gregg are related detonation chambers and incinerators configured to cool the gases and remove particulate matter, which are unsuitable techniques for chemical weapons destruction for discharge to the air under current regulations. Lerner teaches a system that relies on wet scrubbers to remove residual acid gasses and organic compounds. Lamnevik teaches a system for incinerating liquids or suspensions of explosive material not applicable to chemical weapons or high explosives. The four references provide no suggestion or motivation for combining the reference, and any such combination would still not result in the present invention as claimed. Any modification of the teachings from the references to provide the claimed invention would only be apparent to one skilled in the art after fully understanding the present invention and applying impermissible hindsight analysis while using the present application as a blueprint to provide the claimed system for rendering chemical weapons less hazardous. The cited references can not be properly combined to support an obviousness rejection. Therefore, claim 4 is patentable over the applied references and is in condition for allowance.

5. Rejection of Claims 6-8 In View of Donovan '181, Gregg, and Lerner

Claims 6 – 8 were rejected under 35 U.S.C. §103(a) as being obvious over Donovan '181, Gregg and Lerner as applied to claims 1, 3 and 4. Applicants respectfully submit, for the reasons discussed above and the features in the claims, that claims 6-8 are patentable over the applied references and are in condition for allowance. Further, none of the references disclose or teach a heated gas conduit as set forth in claims 6 and 7. The references also do not disclose or teach a conduit for delivering heated gas to the gas being treated. The references are simply silent regarding such elements. The Examiner states that it would have been obvious to modify the system of Donovan, Gregg, and Lerner to provide a heated gas conduit, but the Examiner provides no supporting reference for this assertion. Accordingly, the cited references, taken alone or in combination, do not disclose or teach each and every feature as set forth in the claims. Therefore, claims 6 – 8 are patentable over the cited references and are in condition for allowance.

6. Rejection of Claim 12 In View of Donovan '181 and Gregg

Claim 12 was rejected under 35 U.S.C. §103(a) as being obvious over Donovan '181 and Gregg as applied to claim 1. Applicants respectfully submit, for the reasons discussed above and the features in the claim, that claims 12 is patentable over the applied references and is in condition for allowance. Further, the Examiner states that it would have been obvious to modify the teachings of the cited references to include a valve with a variable opening to regulate gas flow. The cited references are silent regarding such a feature and the Examiner provides no supporting reference for this assertion. Accordingly, the cited references do not disclose or teach each and every feature in the claim. Therefore, claim 12 is patentable over the references and is in condition for allowance.



7. Rejection of Claims 13-16 In View of Donovan '181, Gregg, and Hot Gas Decontamination

Claims 13 – 16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Donovan '181 and Gregg as applied to claim 1, and further in view of Hot-Gas Decontamination. The "Hot Gas Decontamination" reference does not correct the deficiencies of Donovan '181 and Gregg. Applicants respectfully submit, for the above reasons and the features in the claims, that claims 13-16 are also patentable over the applied references.

Further, the "Hot-Gas Decontamination" reference teaches a system for decontaminating of process equipment that has been contaminated with explosive materials structures. The system includes a large furnace into which the entire contaminated equipment is placed, heated, and held at a steady temperature of 600F for one hour. There is no suggestion or motivation to modify the teaching of Donovan '181 and Gregg to place the equipment into a furnace to heat components of the system. The proposed combination of references is simply a piecemeal construction of components in the prior art using the benefit of hindsight analysis. Further, any such combination would still not provide the claimed invention. There is not teaching or suggestion to modify the references to provide the claimed invention, and any such modification would require impermissible hindsight analysis after fully understanding the present invention. The cited references can not properly support an obviousness rejection. Therefore, claims 13-16 are patentable over the applied references and are in condition for allowance.

8. Rejection of Claims 9 and 10 In View of Donovan '181, Gregg, and Hay

Claims 9 and 10 were rejected under 35 U.S.C. §103(a) as being unpatentable over Donovan '181 and Gregg as applied to claim 1, and further in view of U.S. Patent No. 4,875,420 (Hay). Hay is directed toward an incinerator that uses wet scrubbers and that is not suitable for use in the destruction of chemical weapons. Hay does not correct the deficiencies of Donovan '181 and Gregg. Therefore, Applicants respectfully submit, for the

above reasons and the features in the claims, that claims 9 and 10 are also patentable over the applied references and are in condition for allowance.

9. Rejection of Claim 11 In View of Donovan '181, Gregg, and Hladun

Claim 11 was rejected under 35 U.S.C. §103(a) as being unpatentable over Donovan '181 and Gregg as applied to claim 1, and further in view of US Patent No. 4,320,709 (Hladun). Hladun does not correct the deficiencies of Donovan '181 and Gregg. Therefore, Applicants respectfully submit, for the above reasons and the features in the claim, that claim 11 is also patentable over the applied references and is in condition for allowance.

10. Rejection of Claim 17 In View of Donovan '181, Gregg, and Voorhees

Claim 17 was rejected under 35 U.S.C. §103(a) as being unpatentable over Donovan '181 and Gregg as applied to claim 1, and further in view of U.S. Patent No. 5,727,481 (Voorhees). Voorhees does not correct the deficiencies of Donovan '181 and Gregg. Therefore, Applicants respectfully submit, for the above reasons and the features in the claim, that claim 17 is also patentable over the applied references and is in condition for allowance.

11. New Claim 48

New claim 48 has been added. The claim is fully supported and enabled by the application as originally filed, and no new matter has been added. Applicant's respectfully submit that new claim 48 is patentable over the references of record and is in condition for allowance.

In light of the foregoing remarks, all of the pending claims are in condition for immediate allowance. Therefore, Applicants respectfully request reconsideration of the application and allowance of all pending claims. If the Examiner wishes to discuss any

matter related to this application, the Examiner is encouraged to contact Rob Woolston by telephone at (206) 359-3259 to expediently resolve any such matter.

Applicant believes no additional fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-0665, under Order No. 166538011US1 from which the undersigned is authorized to draw.

Dated: November 28, 2006

Respectfully submitted,

By 

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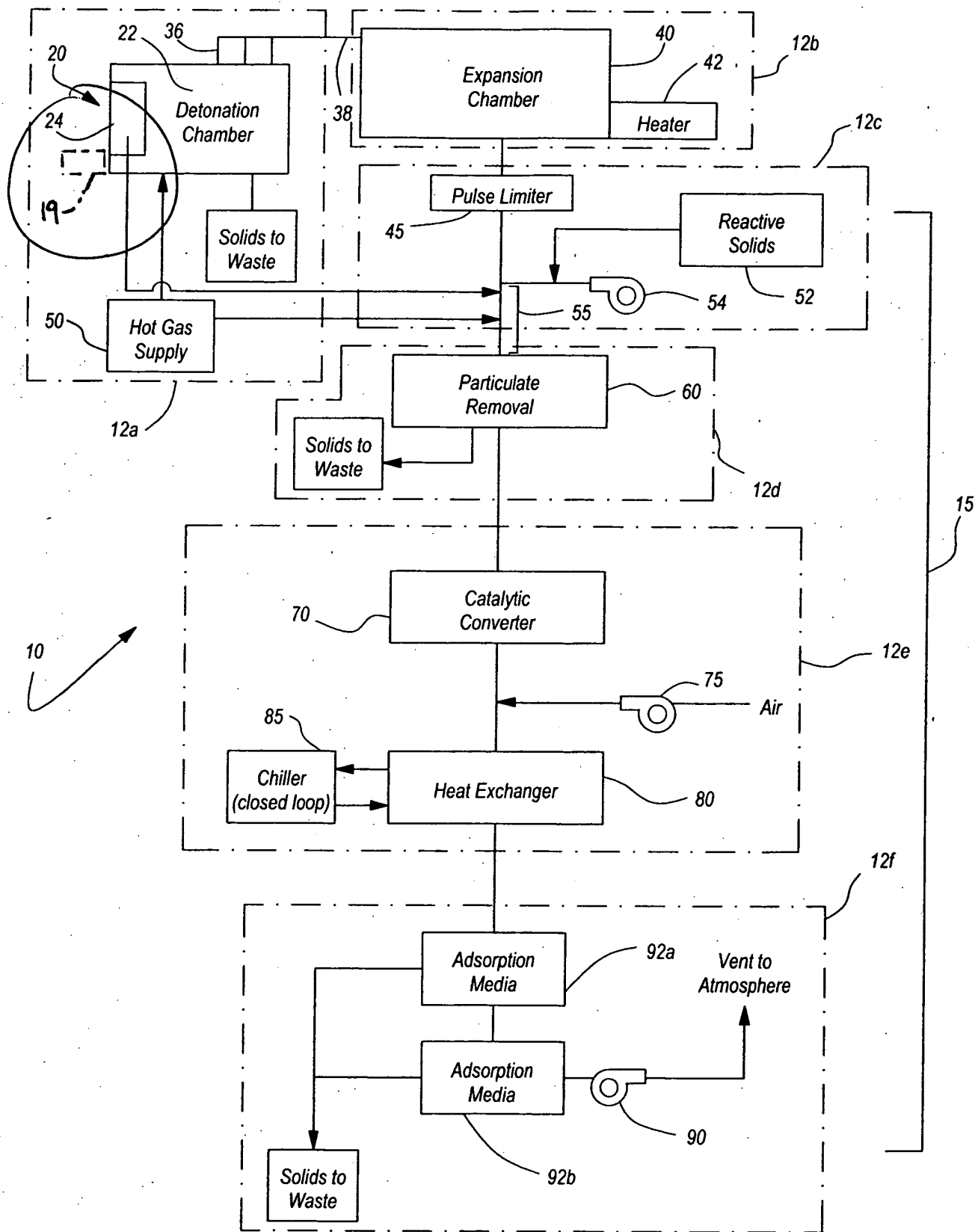


Fig. 1